MAT-8802US

Application No.:

10/561,770

Amendment Dated:

October 15, 2009 Reply to Office Action of: June 15, 2009

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

(Currently Amended) A centrifugal fan comprising: 1.

a plurality of blades circularly arranged, wherein the plurality of blades are interposed between a ring-like lateral plate and a main plate, and integrated;

a casing including therein the plurality of blades, wherein the casing has a discharge outlet, and a bellmouth like an inlet with an internal diameter equal to that of the plurality of blades circularly arranged; and

a motor with a rotation axis thereof connected to the main plate, wherein the motor is fixed to the casing,

wherein each of the plurality of blades has a plurality of asperities on at least one side of dorsal and ventral sides an outer curved surface thereof,

wherein a side of the lateral plate of the plurality of blades is arranged at the inlet, and

wherein the asperities are formed with a projection and a recess alternately repeated from a front edge toward a rear edge thereof in a cross section vertical to a rotation axis of the plurality of blades.

- 2. (Original) The centrifugal fan as claimed in claim 1, wherein the main plate has a substantially truncated-cone-shaped throttle projecting toward the lateral plate.
- 3. (Original) The centrifugal fan as claimed in claim 1, wherein an inside of the casing is formed spirally.
 - (Original) The centrifugal fan as claimed in claim 1, wherein an internal 4.

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diameter of the plurality of blades increases from the main plate toward the lateral plate.

5. (Original) The centrifugal fan as claimed in claim 4, wherein an internal diameter of the plurality of blades increases linearly from the main plate toward the lateral plate.

- 6. (Previously Presented) The centrifugal fan as claimed in claim 1, wherein a recess of the asperities is arc-shaped.
- 7. (Previously Presented) The centrifugal fan as claimed in claim 1, wherein a projection of the asperities is arc-shaped.
- 8. (Previously Presented) The centrifugal fan as claimed in claim 1, wherein a shape of the asperities is formed with arcs continuously repeated.
- 9. (Previously Presented) The centrifugal fan as claimed claim 1, wherein a recess of the asperities is triangle.
- 10. (Previously Presented) The centrifugal fan as claimed in claim 1, wherein a projection of the asperities is triangle.
- 11. (Previously Presented) The centrifugal fan as claimed in claim 1, wherein a shape of the asperities is formed with triangles continuously repeated.
- 12. (Previously Presented) The centrifugal fan as claimed in claim 1, wherein a shape of the asperities is formed with quadrangles continuously repeated.
 - 13. (Previously Presented) The centrifugal fan as claimed in claim 1,

wherein X, distance between a rotation center of the plurality of blades circularly arranged and a position at an internal diameter of the asperities, in a direction of a rotation axis, remains constant; and

wherein distance between the rotation center and a position at an external diameter of the asperities remains constant.

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14. (Currently Amended) The centrifugal fan as claimed in claim 13, wherein relationship among X which is the distance from a rotation center of the plurality of blades circularly arranged to a position of the asperities at an internal diameter thereof, D1 which is an internal diameter of the plurality of blades circularly arranged, and D2 which is an external diameter of the same, is to be D1 < 2X < D1 + 0.35(D2-D1).

- 15. (Previously Presented) The centrifugal fan as claimed in claim 1, wherein distance between a rotation center of the plurality of blades circularly arranged and a side of an internal diameter of the asperities increases toward the main plate.
 - 16. (Currently Amended) The centrifugal fan as claimed in claim 1,

wherein relationship among X which is distance from a rotation center of the plurality of blades circularly arranged to a popsition position of the asperities at an internal diameter thereof, D1 which is an internal diameter of the plurality of blades circularly arranged, and D2 which is an external diameter of the same, is to be D1 < 2X < D1 + 0.35(D2-D1).

17. (Previously Presented) The centrifugal fan as claimed in claim 1,

wherein a ratio between h which is depth of a recess of the asperities, and t which is board thickness of the plurality of blades, is to be 0.1 < h/t < 0.7;

wherein a ratio between f which is width of a recess of the asperities, and h which is the depth, is to be 0.5h < f < 2.5h; and

wherein relation between Y which is distance of the asperities from the lateral plate in a direction of the main plate, and H which is height of the plurality of blades, is to be 0.1 < Y/H < 1.0.

- 18.-29. (Cancelled).
- 30. (Previously Presented) The centrifugal fan as claimed in claim 4, wherein a shape of the asperities is formed with arcs continuously repeated.

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31. (Previously Presented) The centrifugal fan as claimed in claim 4, wherein a recess of the asperities is triangle.

- 32. (Previously Presented) The centrifugal fan as claimed in claim 4, wherein a projection of the asperities is triangle.
- 33. (Previously Presented) The centrifugal fan as claimed in claim 4, wherein a shape of the asperities is formed with triangles continuously repeated.
- 34. (Previously Presented) The centrifugal fan as claimed in claim 4, wherein a shape of the asperities is formed with quadrangles continuously repeated.
 - 35. (Previously Presented) The centrifugal fan as claimed in claim 4,

wherein X, distance between a rotation center of the plurality of blades circularly arranged and a position at an internal diameter of the asperities, in a direction of a rotation axis, remains constant; and

wherein distance between the rotation center and a position at an external diameter of the asperities remains constant.

36. (Previously Presented) The centrifugal fan as claimed in claim 4,

wherein distance between a rotation center of the plurality of blades circularly arranged and a side of an internal diameter of the asperities increases toward the main plate.

37. (Previously Presented) The centrifugal fan as claimed in claim 4,

wherein relationship among X which is distance from a rotation center of the plurality of blades circularly arranged to a position of the asperities at an internal diameter thereof, D1 which is an internal diameter of the plurality of blades circularly arranged, and D2 which is an external diameter of the same, is to be D1 < 2X < D1 + 0.35(D2-D1).

38. (Previously Presented) The centrifugal fan as claimed in claim 4,

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wherein a ratio between h which is depth of a recess of the asperities, and t which is board thickness of the plurality of blades, is to be 0.1 < h/t < 0.7;

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wherein a ratio between f which is width of a recess of the asperities, and h which is the depth, is to be 0.5h < f < 2.5h; and

wherein relation between Y which is distance of the asperities from the lateral plate in a direction of the main plate, and H which is height of the plurality of blades, is to be 0.1 < Y/H < 1.0.

(Previously Presented) The centrifugal fan as claimed in claim 35, 39.

wherein relationship among X which is the distance, D1 which is an internal diameter of the plurality of blades circularly arranged, and D2 which is an external diameter of the same, is to be D1 < 2X < D1 + 0.35(D2-D1).

- 40. (Cancelled).
- 41. (Currently Amended) The apparatus centrifugal fan as claimed in claim 40claim 1,

wherein the apparatus-centrifugal fan is included in one of an air conditioner, ventilating blower, air purifier, humidifier, and dehumidifier.

- 42. (New) A centrifugal fan according to claim 1, wherein the plurality of asperities are formed on most of the outer curved surface of the plurality of blades.
- 43. (New) A centrifugal fan according to claim 1, wherein the inlet is a bellmouth inlet.